REMARKS

INTRODUCTION

In accordance with the foregoing, claims 1, 3, 5 and 8 have been amended. Claims 2 and 9 have been cancelled. Claims 1, 3-8 and 10 are pending and under consideration.

CLAIM REJECTIONS

Claim 8 was rejected under 35 USC 102(b) as being anticipated by Ratakonda et al. (US 6,285,711) (hereinafter "Ratakonda").

Claim 1 was rejected under 35 USC 103(a) as being unpatentable over Ratakonda.

Claims 2, 5, 9 and 10 were rejected under 35 USC 103(a) as being unpatentable over Ratakonda in view of "Efficient Block Motion estimation Using Integral Projections," Ken Sauer and Brian Schwartz, IEEE Transactions on Circuits and Systems for Video Technology, Vol. 6, No. 5, October 1996, pages 513-518 (hereinafter "Sauer").

Claims 3, 4, 6 and 7 were rejected under 35 USC 103(a) as being unpatentable over Ratakonda in view of Sauer, and further in view of Chang et al. (US 6,128,047) (hereinafter "Chang").

Ratakonda discusses a block matching-based method for estimating motion fields and global affine motion parameters in digital video sequences. In Ratakonda, the first of the motion vector components (here the vertical component) in target image 36, having an image block 38, is estimated from the source average vector and the target average vectors (here the row average vectors) in the first iteration from source image 32, having image block 34 therein formed of plural pixels. The search area is then vertically displaced according to the estimated vertical motion. The remaining, second, motion component (here the horizontal motion) is then estimated in the second iteration in target image 40, having image block 42, once the new target average vector (here the column average vectors) has been computed. Ratakonda, 6:25-6:37 and Figure 2.

Amended claim 1 recites: "...a vertical pixel value storage which adds values of pixels of each of horizontal lines forming the first frame to calculate vertical sums, and stores the vertical sums by horizontal line; and a first SAD value calculator which calculates differences between the vertical sums of the first frame and vertical sums of the second frame calculated by adding values of pixels of each of horizontal lines forming the second frame, and processes the

differences into absolute values to calculate sums of absolute difference (SAD) values." Support for this amendment may be found in at least original claim 2.

Amended claim 8 recites: "...adding values of pixels of each of horizontal lines forming the first frame to calculate vertical sums, and storing the vertical sums by horizontal line; and calculating differences between the vertical sums of the first frame and vertical sums of the second frame calculated by adding values of pixels of each of horizontal lines forming the second frame, and processing the differences into absolute values to calculate sums of absolute difference (SAD) values." Support for this amendment may be found in at least original claim 9.

The Office Action cites the first embodiment of Ratakonda, specifically 6:33-6:37 of Ratakonda which is directed to the first embodiment, to show the above technical features of claims 1 and 8. Specifically, the Office Action notes that in Ratakonda since the search area has been vertically displaced according to the vertical motion, the target column average vector is found from target image 40. The Office Action then further relies on Sauer to clarify the integral projection method of Ratakonda.

However, it is respectfully submitted that the first embodiment of Ratakonda does not rely on an integral projection matching method. To the contrary, Ratakonda notes: "[t]he first embodiment of the quasi-projection matching method of the invention will now be described. The term "quasi" comes from the fact that it involves estimating each motion component independently, using a different search area, as opposed to the integral projection technique where the same search area is used to estimate both motion components. Comparisons of the techniques have shown that quasi-projection matching method of the invention provides better results than integral projection..." Ratakonda, 6:9-6:16.

It is well established that prior art is interpreted not to teach an invention particularly when stated objectives of the prior art reinforce such an interpretation. See WMS Gaming Inc. v. International Game Technology, 184 F.3d 1339, 51 USPQ2d 1385 (Fed. Cir. 1999). In claims 1 and 8, the integral projection matching method of Sauer is being combined with an embodiment of the primary reference Ratakonda that explicitly teaches away from the integral projection technique. Accordingly, it is respectfully submitted that the proposed combination is improper and claim 1 patentably distinguishes over the Ratakonda and Sauer.

Claims 2 and 9 have been cancelled. Claims 3-7 and 10 depend on one of claims 1 or 8, respectively, and are therefore believed to be allowable for at least the foregoing reasons.

Withdrawal of the foregoing rejections is requested.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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